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Monitoring Large Rivers in the Federal Surface-Water-Quality Fixed Station Network by the National Stream Quality Accounting Network (NASQAN)

Background:

The Office of Water Quality of the U.S. Geological Survey (USGS) is implementing a Federal Surface-Water-Quality Fixed Station Network (or "Network"), which is comprised of a large rivers component through the National Stream Quality Accounting Network (or "NASQAN") and a smaller rivers and streams component through the National Water-Quality Assessment (NAWQA) Program. The Network is intended to provide stakeholders with reliable information over time for a fixed set of stations. Simultaneously, the Network will be flexible and include other stations with data that are consistent and comparable to the Network data. The additional stations, such as, for example, funded through the USGS Cooperative Water Program or by other federal and state agencies, will expand analysis beyond the Network capabilities.

The Network addresses several objectives, including the quality of water at the terminus of large watersheds entering receiving waters, as needed by the Integrated Ocean Observing System and the proposed U.S. Ocean Action Plan National Monitoring Network. The Network also supports objectives of the Mississippi River/Gulf of Mexico Nutrients Task Force. Some objectives, however, are unique to the individual programs that comprise the Network. This information sheet describes the 5-year (2008-2013) mission, objectives, and locations of the NASQAN large rivers component of the Network. Detailed information on the NASQAN history since its inception in 1973 is provided at http://water.usgs.gov/nasqan/ and http://pubs.usgs.gov/dds/wqn96cd/html/report/contents.htm . Supporting technical information on the planning and implementation of the Network is provided on an internal USGS website at http://in.water.usgs.gov/nawqa/ntc/ntc.html .

Mission:

The mission of NASQAN is to annually monitor and assess concentrations and loads of selected constituents delivered by major rivers to coastal waters of the U.S., and to monitor and assess selected inland sub-basins in priority river basins that contribute significantly to adverse conditions in receiving waters. Findings describe concentrations and constituent transport and delivery of loads over time, as well as possible linkages to basin characteristics, natural and human sources, and land activities. Periodic summary and trend analyses at national and large-basin scales are planned.

Objectives:

National-scale objectives of NASQAN are to assess: (1) concentrations and loads of nitrogen, phosphorus, carbon, silica, dissolved solids, selected pesticides, and suspended-sediment to coastal waters of the U.S.; and, (2) changes in concentrations and loads of these constituents through time. National objectives are accomplished at 13 sites through bimonthly sampling, supplemented by 6 samples representing variable hydrologic and seasonal conditions. The 13 sites account for about 80 percent of the stream flow, suspended sediment, total nitrogen, and total phosphorus discharging to coastal waters from the conterminous U.S.

Additional NASQAN objectives, specific to the Mississippi River Basin and hypoxia in the Gulf of Mexico, are to determine (1) seasonal loads of total and dissolved nutrients from the Mississippi River Basin to the Gulf of Mexico; (2) concentrations and loads of total and dissolved nutrients in major sub-basins and selected smaller watersheds within the Mississippi River Basin; and, (3) changes in loads and concentrations of constituents through time in major sub-basins and selected watersheds within the Mississippi River Basin. Objectives for the Mississippi River Basin and Gulf are accomplished at 19 sites in the Basin.

(***see maps on back***)

Susquehanna River at Conowingo, MD

Potomac River at Chain Bridge at Washington, DC

St. Lawrence River at Cornwall, Ontario, near Massena, NY

Roanoke River near Scotland Neck, NC

Mobile River at Mt. Vernon, AL

Mississippi River at Belle Chasse, LA

Atchafalaya River at Melville, LA

Rio Grande near Brownsville, TX

Colorado River at NIB, above Morelos Dam, AZ

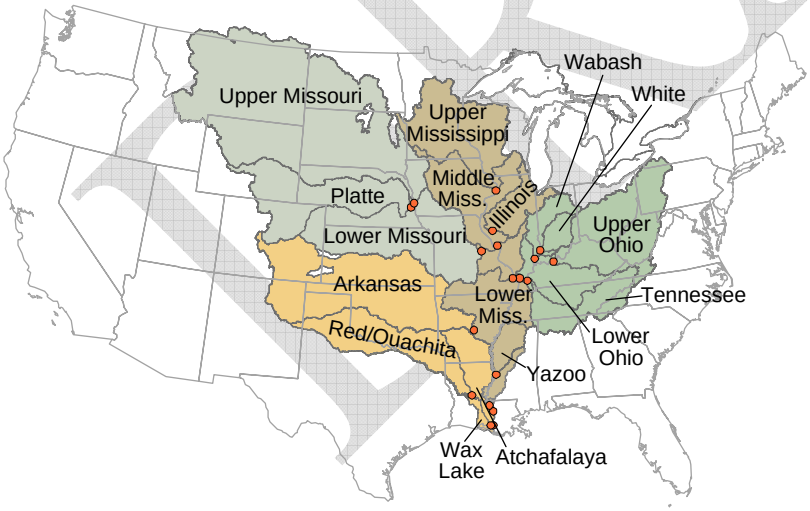
San Joaquin River near Vernalis, CA

Sacramento River at Freeport, CA

Columbia River near Beaver Army Terminal, OR

Yukon River at Pilot Station, AK

Flow, concentrations, and loads are measured at 13 sites discharging to coastal waters of the U.S. (above). Flow, concentrations, and loads are measured in 19 priority sub-basins within the Mississippi River Basin that contribute significantly to adverse conditions in the Gulf of Mexico (below).



Ohio River at Cannelton Dam at Cannelton, IN
White River at Hazleton, IN
Wabash River at New Harmony, IN
Tennessee River at Hwy 60 near Paducah, KY
Ohio River at Dam 53 near Grand Chain, IL
Illinois River at Valley City, IL
Mississippi River Below Grafton, IL
Mississippi River at Clinton, IA
Missouri River at Omaha, NE
Platte River at Louisville, NE
Missouri River at Hermann, MO
Mississippi River at Thebes, IL
Arkansas River at David D Terry Lock and Dam below Little Rock, AR
Yazoo River below Steele Bayou near Long Lake, MS
Red River at Alexandria, LA
Mississippi River near St. Francisville, LA
Mississippi River at Baton Rouge, LA
Wax Lake Outlet at Calumet, LA
Atchafalaya River at Morgan City, LA

For more information, contact Charlie Crawford, cgcrawfo@usgs.gov; (317) 290-3333, ext. 176

Visit the NASQAN website for products, data, maps, and information on the history of the program http://water.usgs.gov/nasqan/. Visit the internal USGS website for information on the planning and implementation of the Federal Surface-Water-Quality Fixed Station Network http://in.water.usgs.gov/nawqa/ntc/ntc.html .